

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before The Board of Patent Appeals and Interferences

Applicant: Ian Baird Smith et al.

Serial No.: 09/445,043

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Title: APPARATUS AND METHOD FOR
CLOSING OFF THE OPEN END
OF A CONTAINER WITH A
REMOVABLE FLEXIBLE
MEMBRANE COVERED BY A
RIGID CAP

Docket No: 350013-000065

Group Art Unit: 3727

Examiner: Robin Annette Hylton

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APPELLANTS' REPLY BRIEF UNDER 37 C.F.R. §41.41

Sir:

In response to the Examiner's Answer on the above-captioned matter dated June 16, 2006, Appellants submit this Reply Brief under C.F.R. §41.41. A Request for an Oral Hearing is filed concurrently herewith.

1. STATUS OF AMENDMENTS AFTER FINAL

The Examiner states that the Appellants' statement of the status of amendments after final rejection contained in the brief is incorrect. The Examiner states that the amendment after final rejection filed on December 23, 2005 has not been entered. Appellants filed a Response after Final under § 1.116 on December 23, 2005 continuing to argue the patentability of the claims. However, the December 23 Response did not contain any amendments to the claims. Therefore, Appellant believes it correctly identified the status of the amendments after final in its Appeal Brief submitted on March 26, 2006 as "no amendments have been filed that are presently pending decision."

BRIEF SUMMARY OF CLAIMED SUBJECT MATTER

The present invention generally relates to a container assembly comprising an open-ended container and a closure for the open-ended container, the closure comprising a flexible membrane. The various claims are directed to the assembly wherein the general improvements over the prior art include, *inter alia*, providing an easy-open end to the container assembly permitting obtaining the contents of the can without the use of an opening device. For ease of reference, the claims are attached hereto in the Claims Appendix.

APPELLANTS' STATEMENTS REGARDING THE EXAMINER'S ANSWER

The Examiner states that Hiroshi teaches a can having a flexible member 3 adhesively secured to the can end, a rigid cap 5 having a laminar member and a skirt 7 extending downwardly from a peripheral edge thereof, and a deformable ring member 6 secured to the rigid

cap (relying on Fig. 8 for support). The Examiner acknowledges that Hiroshi is silent regarding the spacing between the laminar member and the flexible membrane but states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the spacing between the laminar member and the flexible membrane less than the maximum possible extension of the deformable member towards the laminar member to prevent rupture of the flexible member due to excessive pressure within the closed can and to limit the stress placed on the peel seal for limiting the possibility of its failure.

In response to Appellants' argument that the Examiner's conclusion of obviousness is based on hindsight, the Examiner states that any judgment on obviousness is necessarily a reconstruction based on hindsight reasoning. The Examiner states that hindsight reasoning is proper so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Appellants' disclosure. (Relying on *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971) for support).

In *In re McLaughlin* the examiner and board based their holding of obviousness on the fact that one of ordinary skill in the art would find it obvious to combine several references. The CCPA stated that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In the present case, the Examiner is not combining references but rather is suggesting that one skilled in the art at the time Hiroshi was filed would have known to make the spacing between the laminar member and the flexible membranes less

than the maximum possible extension of the deformable member towards the laminar member to prevent rupture of the flexible member due to excessive pressure. However, Hiroshi does not alone suggest this and no combination of references cited by the Examiner makes this suggestion. Appellants respectfully assert that the Examiner is indeed basing her finding of obviousness on knowledge gleaned from the Appellants' disclosure.

Appellants agree that a skilled artisan examining a prior art reference does so with certain background knowledge and understanding. If an item of prior art has a gap in it that, if not filled, would result in the claimed invention not being anticipated, may that gap be filled with the general background knowledge of that person? Yes, of course, but U.S.C. §103(a) expressly requires that obviousness or nonobviousness be determined for the claimed subject matter "as a whole." Appellants contend that the rejections of the claimed subject matter have ignored the extraordinary improvement over Hiroshi and the different advantages provided by the claimed subject matter. These are part of the invention "as a whole" that Hiroshi lacks. Appellants have pointed out these advantages extensively throughout prosecution.

Further, Appellants are claiming a combination of elements as their invention and respectfully assert that combination is not taught, suggested, disclosed or obvious over Hiroshi. Indeed, the U.S. Court of Appeals for the Federal Circuit has noted, "most inventions arise from a combination of old elements and each element may often be found in the prior art." *In re Kahn*, 441 F.3d 977, 986 (Fed. Cir. 2006). Therefore, to address the issue of whether or not the combination is obviousness, the court has established the "motivation-suggestion-teaching" doctrine. Thus, the patent office in considering the application, must clearly explain the

motivation, suggestion or teaching that would have led the “skilled artisan at the time of the invention” to combine known features and create the claimed invention.

The Federal Circuit provides guidance on the “motivation, suggestion, teaching” doctrine in *In re Dembicza*k, 175 F.3d 994 (Fed. Cir. 1999)(abrogated on other grounds in *In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000)) stating that the patent office must make a “clear and particular” showing of evidence of a motivation, suggestion or teaching that teaches the claimed combination. In applying the test, the Federal Circuit has also made clear that the necessary evidence may be drawn from a variety of sources including the knowledge of one skilled in the art. *Dembicza*k, 175 F.3d at 999. Notwithstanding, the Federal Circuit has also stated that a specific identification of the motivation is required. Absent such a requirement, the patent office will be tempted to use “the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.” *Dembicza*k, 175 F.3d at 999. In hindsight, even the most brilliant ideas may seem simple and obvious. As the *Dembicza*k court stated, “the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *Id.* That danger, the court noted, is acute “in the case of less technologically complex inventions, where the very ease with which the invention can be understood” often encourages a hindsight analysis. Appellants suggest that is exactly what has happened with regard to the present application.

The Examiner agrees that the claimed limitation that the laminar member is “spaced from the flexible membrane by a distance less than the maximum possible extension of the flexible

membrane towards the laminar member" is not taught by Hiroshi. The Examiner attempts to find the required suggestion by maintaining that the drawings suggest the limitation stating:

Viewing the screw threads of the cap and the distance between the uppermost thread and the cap top wall, i.e., the laminar member, the distance is small. Similarly, the spacing from the uppermost thread of the container to the container mouth is also small.

The Examiner acknowledges that the drawings are not drawn to scale and Appellants wholeheartedly agree. The drawings are an illustration of Hiroshi's invention, i.e. the patent draftperson's rendition that depicts an invention. That rendition could have shown spacing that was larger, smaller or anywhere in between. In fact, because the drawings are not drawn to scale one would not know whether the spacing shown was large, small or somewhere in between. The fact of the matter is that the drawings are an illustration and do not suggest that the laminar member is "spaced from the flexible membrane by a distance less than the maximum possible extension of the flexible membrane towards the laminar member" as claimed by Appellants.

The Examiner next states:

Once the cap is placed onto the container mouth and the threads of the container and cap are engaged in a closed arrangement, the spacing will still be small.

Even though the drawings of Hiroshi show the cap disengaged from the container bottom, the Examiner *predicts* that if they were engaged, "spacing would still be small" attempting again to find the required motivation or suggestion. Hiroshi does not even remotely make the suggested claim limitation because Hiroshi shows a cap that is disengaged from the container bottom. In fact, a detailed review of *Hiroshi* does not disclose, teach, or suggest that the distance between

the laminar member and the flexible membrane is significant or that *Hiroshi* even contemplated that it was significant.

The Examiner's statements clearly demonstrate that the office has used hindsight gleaned from Appellants' disclosure, claims and arguments made during prosecution to make the argument that *Hiroshi* suggests the limitation claimed by Appellants, i.e. that the laminar member is "spaced from the flexible membrane by a distance less than the maximum possible extension of the flexible membrane towards the laminar member."

Hiroshi discloses the importance of the flexible membrane being capable of maintaining its form under high pressure (i.e. at temperatures greater than 100° C), but it does not teach or suggest that the distance of the laminar member from the flexible membrane assists in maintaining form. *See Hiroshi* at ¶ 3, 14. In sharp contrast to *Hiroshi*, claim 1, subparts (iv) and (v) recites that when the first and second cam and follower pairs on the rigid cap and container neck are fastened/tightened, the laminar member of the rigid cap increases the pressure exerted and that this juxtaposes the laminar member next to the flexible membrane by a distance less than the maximum possible extension of the flexible membrane towards the laminar member. These elements are not taught, disclosed or suggested by *Hiroshi*. Appellants respectfully request that the rejection of the claims under 35 U.S.C. § 103(a) be reversed and a Notice of Allowance be issued.

The Examiner further states:

It is agreed Hiroshi is silent regarding the amount of flexure of the flexible membrane. Hiroshi does disclose it is desired that the membrane does not peel from the container mouth during high temperature and high pressure conditions. One of ordinary skill in the art would determine that flexure of the membrane must occur during this time. The only questions remaining are how much and what is the distance between the mouth of the container covered with the flexible membrane and the laminar member of the closure when in the closed position.

Hiroshi discloses "the object of the present invention is to provide a plastic container for a retort in which peeling off of the plastic sheet – which constitutes the sealing lid – does not occur during the manufacture of the retort container product, and in which, using normal finger strength, the plastic sheet, i.e. the membrane, can be easily peeled off when opened by the final user. *Hiroshi*, §4. To accomplish this, *Hiroshi* discloses that "the outer lid 5 is placed on the inner lid 3 wherein the outer lid 5 is rotated, and, by means of the screw mechanism, the inner lid 3 is tightly fastened to the upper surface of the opening of the container main body 1 by the outer lid 5. Since . . . the inner lid 3 is tightly fastened by the outer lid 5, the inner lid 3 will not peel off even during retort sterilizing treatment under high-pressure and high-temperature treatment."

Hiroshi, ¶¶ 13, 14. Thus, Appellants contend that one of ordinary skill in the art would not determine that flexure of the membrane must occur during this time as *Hiroshi* makes no such suggestion and one skilled in the art would not conclude or be motivated to find that "the only questions remaining are how much and what is the distance between the mouth of the container covered with the flexible membrane and the laminar member of the closure when in the closed position."

In refuting Appellants' argument that the vent holes on the top wall of Hiroshi would cause the membrane to burst rendering the closure inoperable, the Examiner states:

It is suggested that the membrane of Hiroshi not only flexes, but is ventable as well. The vent holes of the closure cap suggest that [the] membrane allows venting of the container. While appellant may argue venting of the lid would avoid flexure, it is asserted that the membrane will flex prior to any venting of the container during the retort process. Thus, providing the laminar member of the cap next to the flexible membrane by a distance less than the maximum possible extension of the flexible membrane towards the laminar member would have been obvious to one of ordinary skill in the art

...

Appellants again contend that *Hiroshi* teaches away from the limitation that the laminar member is juxtaposed next to the flexible membrane by a distance less than the maximum possible extension of the flexible membrane towards the laminar member because it would make Hiroshi inoperable and thus it would not have been obvious to one of ordinary skill in the art to make that modification.

According to the disclosure of *Hiroshi*, an interior lid 3 formed of a plastic sheet is heat sealed to a container body 1. Over the interior lid 3 is placed an exterior lid 5, on the underside of the exterior lid being a gasket ring 6 which when the exterior lid 5 is placed on the container 1 makes contact with the edge of the interior lid 3. Notably, the space between the interior lid 3 and the exterior lid 5 is not considered significant in *Hiroshi*, despite the Examiner's suggestion that the illustration in the figures suggest it. There is absolutely no teaching or reference made with respect to this element in the drawings or in the specification.

The exterior lid 5 of Hiroshi contains a series of vent holes 8. See, *Hiroshi* at ¶10 and Figure 1. *Hiroshi* discloses that the outer lid 5 is put on the inner lid 3 and turned to fasten it

tightly to an upper surface of the opening of the container body 1 through a screw mechanism.

Hiroshi, ¶ 13. In a container thus covered with lids 3 and 5, in which the inner lid 3 is fastened by the outer lid 5, *when a high temperature treatment is carried out under pressure*, the inner lid 3 is prevented from peeling off. *Hiroshi*, ¶14 and [Effect], page 2 (emphasis added). Thus at the time of the high temperature treatment which occurs under pressure, both the inner lid 3 and outer lid 5 are attached by screws, the outer lid further containing the vent holes 8. *Hiroshi*, ¶15.

As identified by *Hiroshi*, the intended use of the disclosed device is to hold packaged food, the packaging process requiring the device to be heated to a temperature that sterilizes the internal surfaces of the disclosed device. *Hiroshi*, ¶13. The Examiner has acknowledged that the inner lid 3 of *Hiroshi* is inherently flexible, and such flexibility is required to compensate for pressure build-up on the inside of the can caused by high-temperature and high-pressure in the sterilization process. Office Action 8/16/2005, at 4. Thus, due to the inherently flexible nature of the inner lid 3 and build-up of pressure during the sterilization process, the inner lid 3 would assume a convex shape as the increased interior gas pressure pushes the interior lid 3 toward the exterior lid 5.

Appellants' claim with regard to its invention, is that the "laminar member is spaced from the flexible membrane by a distance less than the maximum possible extension of the flexible membrane towards the laminar member." See, Claim 1, Claims Appendix. If *Hiroshi* were modified so that the outer lid 5 was spaced apart from the inner lid 3 by a distance less than the maximum possible extension of the inner lid 3 towards the outer lid 5, the effect of reducing the distance that exists between the outer lid 5 and the inner lid 3 would cause the inner lid to flex

into a convex shape during the sterilization process, thereby contacting the underside of the outer lid 5. If this happened, there is the distinct possibility that the plastic sheet would rupture due to the existence of the vent holes 8. The vent holes 8 permit the convex plastic sheet to extend beyond the surface of the underside of the outer lid 5, resulting in an uneven distribution of pressure on the inner lid. This uneven distribution of pressure may cause the inner lid 3 to burst, thereby causing the contents of the container to spoil.¹ Thus, the function of the sealed container, to preserve food until such time as one desires to consume it, is rendered useless if modified by the inventive limitation disclosed by the present invention.

Because the proposed modification of the prior art suggested by the Examiner renders that prior art useless, the prior art cannot teach or suggest the modification embodied in the present invention. Consequently, without a teaching or suggestion for the modification, there can not be any expectation of success. Therefore, rejection pursuant to 35 U.S.C. § 103(a) is improper, and Appellants respectfully request that the rejection be reversed and a Notice of Allowance be issued.

(8) CONCLUSION

Pending claims 1, 2, 4, 6, 8-11, and 13 remain rejected pursuant to 35 U.S.C. § 103(a). Appellants respectfully assert that the Examiner has not established the existence of a *prima facie* case of obviousness, and respectfully request that the Board of Patent Appeals and Interferences reverse the Examiner's decision on all counts.

¹ Another distinct possibility is the inner lid 3 extends through the vent holes 8 during sterilization and remains there after heating.

This Reply Brief is being submitted within the time period specified in 37 C.F.R. §41.41.

It is believed that no fees are required; however, if it is determined that fees are required the Commissioner is hereby authorized to charge any necessary fees, and to credit any such fees or overpayment, to Deposit Account No. 50-1901 (Reference – 350013-000065).

Respectfully submitted,

By 

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(A) CLAIMS APPENDIX

1. (Previously Presented) A container assembly comprising a closure for an open-ended container, and an open-ended container, the container assembly comprising:

- (i) a flexible membrane for closing the open end of the container;
- (ii) an adhesive seal between the flexible membrane and the container;
- (iii) a rigid cap having a resiliently deformable member juxtaposed to the flexible membrane such that when the cap is in use, the flexible membrane is pressed against the container in the vicinity of the seal, thereby reinforcing the seal sufficiently to withstand high pressures which are generated from cooking the contents of the container;
- (iv) the rigid cap further having a first cam and follower pair, which when in use is engaged with a second cam and follower pair located on the container neck, relative movement between the first and second cam and follower pairs in a predetermined direction causes the rigid cap and the container neck to approach one another, thereby increasing the pressure exerted by the resiliently deformable member on the flexible membrane; and
- (v) the rigid cap further having a laminar member and an annular skirt, the skirt extending downwardly from the laminar member, and the second cam and follower pair is secured on an upper wall of the skirt,

wherein the laminar member is spaced from the flexible membrane by a distance less than the maximum possible extension of the flexible membrane towards the laminar member.

2. (Cancelled)

3. (Previously Presented) A container assembly according to Claim 1 wherein the first and second cam and follower pairs include co-operating screw threads formed respectively on the container neck and the rigid cap.

4. (Previously Presented) A container assembly according to Claim 1 further having an annular flange, the resiliently deformable member is substantially congruent with the flange, and wherein the rigid cap is in place over the container, the resiliently deformable member presses the flexible membrane against the flange.

5. (Cancelled)

6. (Previously Presented) A container assembly according to Claim 1 wherein the laminar member is a circular disc, and the skirt extends from the outer periphery thereof.

7. (Cancelled)

8. (Previously Presented) A container assembly according to Claim 1 wherein the resiliently deformable member comprises a foamed material secured to the rigid cap.

9. (Previously Presented) A container assembly according to Claim 1 wherein the flexible membrane comprises a metal foil adhesively securable on the container neck.

10. (Previously Presented) A container assembly according to Claim 4 wherein the rigid cap is shaped for use with the container neck which is generally cylindrical in shape.

11. (Previously Presented) A container assembly according to Claim 1 including a lifting tab hingedly secured to the flexible membrane and is comprised of the same material as that of the flexible membrane.

12. (Cancelled)

13. (Previously Presented) A container assembly according to Claim 1 wherein the rigid cap supports the body of the can in a radial direction.

14. (Withdrawn) A method of closing a container with a closure to form a container assembly according to Claim 1 comprising the steps of:

(i) adhesively securing said flexible membrane on the open end of a the neck of the container, thereby forming said seal;

(ii) engaging the cam and follower of a said rigid cap and the container neck, with one another; and

(iii) moving the rigid cap and the container neck relative to one another to cause relative movement between the cam and the follower in the predetermined direction, thereby causing the resiliently deformable member to press the flexible membrane against the container in the vicinity of the seal sufficiently to maintain the seal against pressures generated in the container on cooking of its contents.

15. (Withdrawn) A method according to Claim 14 including the step of securing the flexible membrane on the open end of the said container neck by use of a heat-sealing method such as heat contact, ultrasonic, induction or hot air heating.

16. (Withdrawn) A method according to Claim 14 wherein the step of moving the rigid cap and the container neck relative to one another includes rotating the rigid cap and the container relative to one another.

17. (Withdrawn) A method according to Claim 14 wherein the step of adhesively securing the flexible membrane on the open end of the container neck includes the sub steps of applying adhesive material to the flexible membrane and/or the container neck; engaging the flexible membrane and the container neck with one another to define the seal; and curing the adhesive material.

18. (Withdrawn) A method according to Claim 17 wherein the substep of curing the adhesive material includes heating thereof.

19-21. (Cancelled)

22. (Withdrawn) A method according to Claim 14 including the steps of:

Adding food to the container through a second open end of the container which is opposite said open end closed by said closure;

closing said second open end by a conventional can end;

heating said food within said container to cook said food; and

preventing rupture of said flexible membrane due to internal container pressure caused by said heating by the presence of said laminar member of said cap.